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Description

BACKGROUND OF THE INVENTION

(a) Technical Field of Invention

This invention relates to an inkable sheet, and, in particular, to a sheet suitable for use with an ink jet printer.

(b) Background of the Art

Ink jet printing is already established as a technique for printing variable information such as address labels, multi-colour graphics, and the like. A simple form of ink jet printer comprises a capillary tube coupled to an ink reservoir and a piezo-electric element which, on application of a voltage pulse, ejects an ink droplet from the capillary tube at high velocity (e.g. up to 20ms^{-1}) onto an ink-receptive sheet. Movement of the ink jet may be computer controlled, and new characters may therefore be formed and printed at electronic speeds. To derive advantage from this high speed operating capability requires the use of an ink-receptive sheet which will quickly absorb the high velocity ink droplet without blotting or bleeding. Although plastic sheets may be employed, these generally tend to exhibit inferior ink absorption and retention characteristics. In particular, drying of an applied ink pattern is slow, and immediate handling of a freshly imaged sheet is therefore prevented.

(c) The Prior Art

Various recording sheets have been proposed for use with ink jet printers. For example, British patent specification GB 2050866-A discloses an ink-jet recording sheet comprising a layer of a water-soluble coating polymer disposed on a support having a water absorptivity of not more than 30gm^{-2} (JIS P8140). The support, which may be of paper, cloth, plastic film, metal sheet, wood board or glass sheet, should be sized, if necessary, to provide the specified water absorptivity level to prevent penetration of the water-soluble coating polymer into the support. The characteristic feature of the sheet is that the layer of water-soluble polymer, which desirably has a high viscosity, dissolves or swells in the water of a subsequently applied aqueous ink to increase the viscosity of the ink. Although such behaviour is said to provide an image of high density, high resolution and good colour reproduction without causing ink overflow, mixing or flying, a pattern applied to the sheet using an aqueous organic solvent-based ink is relatively slow to dry.

British patent specification GB 2116880-A re-

lates to a material, used to bear writing or printing, comprising a substrate having a coating layer which is divided by micro-cracks of irregular form into lamellae. The width of each micro-crack is usually several μm , whereby the solvent medium of a subsequently applied ink passes through the micro-cracks and is quickly absorbed into the substrate which comprises a porous, liquid-absorbing material, such as paper. The dimensions of the micro-cracks are such that the product is opaque and therefore unsuitable for use in the production of transparencies for use in an overhead projector. Furthermore, the requirement for the solvent medium of the ink to pass through the micro-cracked structure into the porous substrate precludes the provision of an intermediate adhesive layer to promote adhesion between the substrate and coating layer.

European patent specification EP-A-71169 discloses a molded article, which includes films and tubular bodies, having an open-cell structure. The molded article contains a copolymer which is comprised of copolymerised, fluorinated olefin, copolymerised vinyl acetate and optionally copolymerised olefin. The acetate groups of the copolymer are optionally saponified into hydroxyl groups. The molded articles have pores of a diameter in the range from 0.002 to $10\text{ }\mu\text{m}$. The pores of the molded articles are, to a large extent, filled with fluid to form a transparent product.

British patent specification GB 984216-A relates to an ink receptive coated plastic film suitable for retaining a pressure-inscribed ink composition, for example of the type present in a typewriter ribbon. The coated plastic film disclosed in GB 984216-A has a porous surface having a sponge like, loosely knit, honeycomb structure.

We have now devised an inkable sheet which is particularly suitable as an ink jet recording sheet for use with an ink jet printer.

SUMMARY OF THE INVENTION

Accordingly, the present invention provides a transparent inkable recording sheet comprising a self-supporting non-porous thermoplastics polymeric film substrate having on a surface thereof a porous, ink-absorbent, resin layer, the porous resin layer comprising voids capable of absorbing and retaining an aqueous-organic solvent-based ink by capillary action, said voids having a width of from 0.001 to $1.0\text{ }\mu\text{m}$ and an aspect ratio (ie length:width) of from 4 to 400 .

DETAILED DESCRIPTION AND PREFERRED EMBODIMENTS OF THE INVENTION

In one embodiment of the invention, an inkable

sheet additionally comprises an intermediate adhesive layer between the substrate and ink-absorbent layer. The adhesive layer may be deposited directly onto the substrate or may be bonded thereto by a priming layer.

By a "self-supporting film" is meant a film capable of independent existence in the absence of a supporting substrate.

By a "non-porous" substrate is meant a substrate incapable of absorbing an aqueous-organic ink-solvent medium other than by molecular diffusion of the medium into the substrate.

By a "porous" resin layer is meant a resin layer comprising voids, such as - fissures, cracks, pores, open cells, or the like, capable of absorbing and retaining an aqueous-organic ink-solvent medium by capillary action.

The porous ink-absorbent layer permits rapid drying of an applied inked pattern, and is desirably such that an aqueous-diethylene glycol (50:50 w/w) based ink, or similar composition, applied to the surface of a sheet from an ink jet printer will resist off-setting when the inked surface is placed in contact with the surface of a paper sheet within 50 seconds, and preferably within 45 seconds, of application of the ink. Desirably, the applied ink should be absorbed by the absorbent layer to an extent such that smudging does not occur on rubbing with a finger within 45 seconds, and preferably within 30 seconds of application of the ink.

The ink-absorbent layer conveniently comprises any hydrophobic or hydrophilic resin, or a blend of resins, which can be coated onto the substrate to yield an absorbent layer having a degree of porosity and pore size which will confer the desired ink-absorption characteristics. If a hydrophobic resin is employed, a surfactant may conveniently be incorporated therewith to ensure adequate wetting of the pores by the subsequently applied ink.

An inkable sheet according to the invention is of particular utility in the production of an imaged transparency for viewing in a transmission mode, as for example in association with an overhead projector in which a light source is positioned behind a sheet bearing an inked image and the image is observed from the image side by light transmitted through the sheet. The dimensions of the voids in the porous resin layer should therefore be such that the non-inked porous layer is initially transparent, i.e. substantially non-light-scattering. A non-inked porous layer should be inherently transparent and non-light-scattering and will generally comprise voids, such as fissures, cracks, pores, open cells, or the like, having a width or diameter in a range of from 0.001 to 1.0, preferably from 0.001 to 0.75, and, particularly preferably from 0.01 to 0.05 μm . The aspect ratio (i.e. length:width) of the voids may

vary over a wide range, from 4 to 400, and especially from 20 to 100.

A porous ink-absorbent resin layer may be prepared by a variety of methods. Thus, a film substrate may be coated with a formulation comprising a colloidal dispersion in a volatile carrier medium - for example, a coacervate of a polyacid and a polybasic material. Alternatively, a blend of incompatible polymers may be deposited from a mutual solvent. In another method, a polymer may be deposited on a substrate from a blend of solvents such that the least volatile and slower evaporating solvent has poor solvency for the absorbent resin. Step-wise drying of a deposited polymer layer may also be employed to yield the desired porous structure.

It will be apparent that any resin capable of forming a porous absorbent layer on a film substrate may be employed in the production of a sheet according to the invention. Suitable resins include cellulose, such as nitrocellulose, ethylcellulose and hydroxyethylcellulose; gelatins; vinyls, such as polyvinylacetate, polyvinylchloride, and copolymers of vinyl chloride and vinyl acetate; acrylics, such as polyacrylic acid; and polyvinylpyrrolidones. A transparent ink-absorbent layer preferably comprises a cellulosic resin and, in particular, a hydroxyethylcellulose. The layer is conveniently applied to the substrate by a conventional coating technique - for example, by deposition from a solution or dispersion in a volatile medium, such as an aqueous or organic solvent medium, a preferred coating medium comprising an aqueous-methanolic suspension of a hydroxyethylcellulose.

Drying of the applied ink-absorbent layer may be effected by conventional drying techniques. In particular, to confer porosity, drying may be effected by a step-wise technique - for example, by initially suspending the coated substrate in a hot air oven maintained at a temperature of from about 60 to 100°C, and subsequently heating the coated substrate to a higher temperature for example, about 120°C, until the desired porosity is developed.

The thickness of the dry ink-absorbent layer may vary over a wide range but is conveniently within a range of from 5 to 25 μm and preferably from 8 to 13, for example 10 μm .

A feature of such absorbent coatings is the flatness of the resultant, single-side coated sheet - as evidenced by the absence of edge lift-off when the sheet is placed on a flat surface - such as a table top.

If desired, the ink-absorbent layer may additionally comprise a particulate filler to improve the handling characteristics of the sheet. Suitable fillers include silica, desirably of a particle size not exceeding 20, and preferably less than 12, for exam-

ple 8 μm . The amount of filler employed will be dictated by the desired characteristics of the sheet but will generally be low to ensure that the optical characteristics (such as haze) of the sheet remain unimpaired. Typical filler loadings are of the order of less than 0.5, and preferably from 0.1 to 0.2, per cent by weight of the resin component.

A non-porous substrate (primed, if desired) on which the ink-absorbent layer is deposited may comprise any polymeric material, capable of forming a self supporting opaque or, preferably, transparent film or sheet. Suitable polymeric materials include cellulose esters, e.g. cellulose acetate, polystyrene, polyamides, polymers and copolymers of vinyl chloride, polymers and copolymers of olefines, e.g. polypropylene, polysulphones, polycarbonates and particularly linear polyesters which may be obtained by condensing one or more dicarboxylic acids or their lower alkyl (up to 6 carbon atoms) diesters, e.g. terephthalic acid, isophthalic acid, phthalic acid, 2,5-, 2,6- and 2,7- naphthalene dicarboxylic acid, succinic acid, sebacic acid, adipic acid, azelaic acid, diphenyldicarboxylic acid and hexahydroterephthalic acid or bis-p-carboxyl phenoxy ethane (optionally with a mono-carboxylic acid, such as pivalic acid) with one or more glycols, e.g. ethylene glycol, 1,3-propanediol, 1,4-butanediol, neopentyl glycol and 1,4-cyclohexanedimethanol. A biaxially oriented and heat-set film of polyethylene terephthalate is particularly useful as a substrate for the production of a sheet according to the invention and may be produced by any of the processes known in the art, e.g. as described in British patent specification 838 708.

The polymer substrate is suitably of a thickness from 25 to 300, particularly from 50 to 175 and especially from 75 to 125 μm .

An adhesive layer suitable for inclusion, if desired, between the substrate and ink-absorbent layer may comprise a polyester resin, but preferably comprises at least one thermoplastics resin component and a tackifier component therefor. A range of thermoplastics resins may be used in formulating the adhesive layer, with the proviso that preferably they are light-transmitting. Elastomeric thermoplastics such as low molecular weight polyethylene, amorphous polypropylene, ethylene-vinyl acetate copolymers or ethylene-ethyl acrylate copolymers are suitable representatives of this component of the adhesive coating layer. Preferred elastomeric thermoplastics resins for this application are SBS and SIS copolymers (styrene-butadiene-styrene and styrene-isoprene-styrene block copolymers) the SBS copolymers being found generally to provide more readily the desired properties in the adhesive coating.

Tackifiers suitable for use in formulating the adhesive layer include, rosin esters, hydrogenated

rosin and hydrogenated rosin esters, polyterpene resins, aromatic e.g. coumarone-indene resins, mixed aromatic/aliphatic resins e.g. copolymers of C_5 conjugated dienes and styrene or alpha-methyl styrene or vinyltoluene and aliphatic resins derived from mixtures of C_5 mono- and di-olefines. Although the tackifying properties of any given tackifier vary from thermoplastics resin to thermoplastics resin the effectiveness tends to decrease in the order of the tackifiers listed above, i.e. rosin is excellent whereas C_5 resins are less effective. The nature of the thermoplastics resin does however play a large part. For example, the aliphatic resins are more effective in SIS than in SBS thermoplastics.

The adhesive layer may include any other additive conventionally employed in the polymeric films art, including, for example, waxes, slip and anti-blocking agents, antioxidants and stabilisers and, in particular, a particulate filler, such as alumina or silica, having a particle size of less than about 20 μm , and preferably from 1 to 10 μm , to facilitate handling of the adhesive - coated substrate on conventional roller equipment.

The adhesive layer conveniently comprises from 30 to 70%, preferably from 35 to 60%, by weight thermoplastics resin, from 70 to 30%, preferably from 40 to 65% by weight tackifier(s) and up to 5%, preferably up to 3%, by weight each of the other additive(s).

The thickness of the adhesive layer is desirably less than 10, and preferably less than 1.5 μm .

The adhesive layer may be applied to the substrate by deposition from a common organic solvent e.g. trichlorethylene, acetone or methylethyl ketone.

Alternatively, a surface of the substrate may first be treated with a priming medium. Creation of a priming layer is conveniently effected by treating the surface of the polymer substrate with an agent known in the art to have a solvent or swelling action on the substrate polymer. Examples of such agents, which are particularly suitable for the treatment of a polyester substrate, include a halogenated phenol dissolved in a common organic solvent e.g. a solution of p-chloro-meta-cresol, 2,4-dichlorophenol, 2,4,5, or 2,4,6-trichlorophenol or 4-chlororesorcinol in acetone or methanol. In addition, and preferably, the priming solution may contain a partially hydrolysed vinyl chloride-vinyl acetate copolymer. Such a copolymer conveniently contains from 60 to 98 per cent of vinyl chloride, and from 0.5 to 3% of hydroxyl units, by weight of the copolymer. The molecular weight (number average) of the copolymer is conveniently in a range of from 10,000 to 30,000, and preferably from 16,500 to 25,000.

The priming agent is suitably applied at a

concentration level which will yield a priming layer having a relatively thin dry coat thickness - for example, generally less than 2 μm , and preferably, less than 1 μm .

An alternative adhesive layer, suitable for deposition onto a phenolic primer layer of the aforementioned kind, conveniently comprises a partial ester formed from polyvinyl alcohol and mono-chloroacetic acid.

An inkable sheet according to the invention is particularly suitable for use in the preparation of inked transparencies for use in a transmission mode, for example - with an overhead projector. Retention in the porous absorbent layer of the solvent medium of an applied ink ensures rapid drying of the ink, and facilitates immediate use of the imaged sheet.

The invention is illustrated by reference to the accompanying drawings in which:

Figure 1 is a schematic elevation (not to scale) of a portion of an inkable sheet comprising a non-porous substrate 1 to one surface of which a porous, ink-absorbent layer 2 is bonded by an intermediate layer 3 of an adhesive resin.

Figure 2 is a fragmentary schematic elevation of a similar sheet in which an additional layer 4 of a priming medium is provided at the interface between substrate 1 and adhesive layer 3.

Figure 3 is a fragmentary schematic elevation of a similar sheet in which an absorbent, porous layer 2 is bonded directly to a surface of an unprimed, non-porous substrate 1, and

Figure 4 is a schematic, magnified, perspective view of an element of the sheet of Figure 1. Based on examination by scanning electron microscope, the ink-absorbent layer 2 of about 10 μm thickness comprises an array of fissure-like voids 5. The aspect ratio of these voids varies, but a typical void 5 is approximately 0.4 μm long and 0.05 μm wide, i.e. an aspect ratio of 8.

The invention is further illustrated by reference to the following Examples.

EXAMPLE 1

One surface of a biaxially oriented, uncoated, polyethylene terephthalate film substrate of about 100 μm thickness was treated with an adhesive resin medium comprising a solution in trichloroethylene of CARIFLEX TR 1100 (2.0% weight/vol) and ZONATAC 105 (2.0% weight/vol) resins. The resin solution also contained 0.5% by weight of the resins of GASIL HP 34. CARIFLEX TR 1100 is a styrene-butadiene-styrene block copolymer resin; ZONATAC 105 is a polyterpene resin; GASIL HP34 is a particulate silica filler.

The treated substrate was then dried in a hot air oven at 60°C to leave an adhesive layer of

about 1 μm thickness on the substrate.

The dry adhesive-coated-sheet was then coated with an aqueous-methanol (15:85 w/w) solution of a hydroxy ethyl cellulose resin containing about 0.2 per cent, by weight of the resin, of silica of mean particle size about 8 μm . The coated sheet was then dried in an air oven initially at a temperature of 100°C for 30 seconds, and then at a temperature of 120°C for 5 minutes, to leave an ink-absorbent porous coating of some 10 μm thickness.

Examination of the porous coating layer by scanning electron microscope revealed a pattern of fissure-like voids of average width in a range of from 0.01 to 0.05 μm extending over the surface and into the layer.

An aqueous-diethylene glycol (50:50 w/w)-based ink applied to the ink-absorbent layer from an ink jet printer was resistant to rubbing by a finger within from 15 to 30 seconds of the application, and was resistant to off-setting in contact with a Caxton copier paper sheet within 45 seconds of the application.

EXAMPLE 2

This is a comparative Example not according to the invention. The procedure of Example 1 was repeated save that the ink-absorbent layer was a hydroxypropylmethyl cellulose resin, and was dried to yield a non-porous resin layer. The resultant sheet was susceptible to blotting for up to 5 minutes after application of the ink.

EXAMPLE 3

One surface of a commercially available, untreated, cast cellulose triacetate film was directly coated (i.e. no intermediate adhesive resin layer) with an aqueous-methanol (15.85 w/w) solution of a hydroxy ethyl cellulose resin containing about 0.2 per cent, by weight of the resin, of silica of mean particle size about 8 μm . The coated sheet was then dried in an air oven initially at a temperature of 100°C for 30 seconds, and then at a temperature of 120°C for 5 minutes, to leave an ink-absorbent porous coating of some 10 μm thickness, exhibiting fissure-like voids of the kind observed in Example 1.

An aqueous-diethylene glycol (50:50 w/w) based ink applied to the ink-absorbent layer from an ink jet printer was resistant to rubbing by a finger within from 15 to 30 seconds of the application, and was resistant to off-setting in contact with a Caxton copier paper sheet within 45 seconds of the application.

When imaged with an inked pattern applied by an ink jet printer the sheet performed satisfactorily

as a transparency for use with an overhead projector.

EXAMPLE 4

One surface of a biaxially oriented, uncoated, polyethylene terephthalate film substrate was treated with an adhesive resin medium comprising a solution in methyl ethyl ketone of a soluble polyester resin (Du Pont 49001) (4.0% weight/vol). The resin solution also contained 0.5% by weight of the resin of GASIL HP 34. GASIL HP34 is a particulate silica filler.

The treated substrate was then dried in a hot air oven, coated with an aqueous-methanol (15:85 w/w) solution of a hydroxy ethyl cellulose resin containing about 0.2 per cent, by weight of the resin, of silica, and step-wise dried, as described in Example 1.

An aqueous-diethylene glycol (50:50 w/w)-based ink applied to the ink-absorbent layer from an ink jet printer was resistant to rubbing by a finger within from 15 to 30 seconds of the application, and was resistant to off-setting in contact with a Caxton copier paper sheet within 45 seconds of the application.

When imaged with an inked pattern applied by an ink jet printer the sheet performed satisfactorily as a transparency for use with an overhead projector.

EXAMPLE 5

The procedure of Example 4 was repeated save that the hydroxyethyl cellulose coating did not contain a silica filler.

The product behaved similarly to that of Example 4.

Claims

1. A transparent inkable recording sheet comprising a self-supporting non-porous thermoplastics polymeric film substrate having on a surface thereof a porous, ink-absorbent, resin layer, the porous resin layer comprising voids capable of absorbing and retaining an aqueous-organic solvent-based ink by capillary action, said voids having a width of from 0.001 to 1.0 μm and an aspect ratio (ie length:width) of from 4 to 400.
2. An inkable sheet according to claim 1, wherein the porous layer comprises a hydrophobic resin, or a hydrophilic resin, or a blend of two or more such resins, whereby the porosity of the porous layer is such that an aqueous-diethylene glycol (50:50 w/w)-based ink ap-

plied to the porous layer from an ink jet printer will resist off-setting when placed in contact with a paper sheet within 50 seconds of application of the ink.

3. An inkable sheet according to either of claims 1 and 2 wherein the porous layer comprises a hydroxyethyl cellulose resin.
4. An inkable sheet according to any one of the preceding claims wherein the substrate comprises a biaxially oriented polyethylene terephthalate film.
5. An inkable sheet according to any one of the preceding claims additionally comprising an intermediate adhesive layer between the substrate and the ink-absorbent layer.
6. An inkable sheet according to claim 5 wherein the adhesive layer comprises an elastomeric thermoplastics resin and a tackifier therefor.
7. An imaged transparency for use in a transmission mode comprising a sheet according to any one of the preceding claims having an inked pattern applied to the porous resin layer by an ink jet printing technique.
8. A method of producing a transparent inkable recording sheet according to any one of the preceding claims comprising forming, on a non-porous thermoplastics polymeric film substrate, a porous, ink-absorbent layer of a resin comprising a hydrophobic resin, or a hydrophilic resin, or a blend of two or more such resins characterised by applying to the substrate a coating composition comprising the resin or resins in a volatile medium and thereafter drying the coated substrate to remove the medium, wherein the applied coating composition comprises
 - a) a colloidal dispersion of the resin(s) in a volatile medium, or
 - b) a blend of incompatible resins in a mutual solvent medium, or
 - c) a solution of the resin(s) in a solvent medium, with the proviso that at least for composition (c) the drying is effected step-wise at progressively increasing temperatures.

Revendications

1. Feuille d'enregistrement imprimable transparente, caractérisée en ce qu'elle comprend un substrat de film polymère thermoplastique non-poreux auto-porteur dont une surface por-

te une couche de résine poreuse absorbant l'encre, la couche de résine poreuse comprenant des vides capables d'absorber et de retenir une encre à base d'eau et de solvant organique par action capillaire, ces vides ayant une largeur de 0,001 à 1,0 μm et un rapport d'aspect (c'est-à-dire longueur/largeur) de 4 à 400.

2. Feuille imprimable suivant la revendication 1, caractérisée en ce que la couche poreuse comprend une résine hydrophobe ou une résine hydrophile ou un mélange de deux de ces résines ou davantage, si bien que la porosité de la couche poreuse est telle qu'une encre à base d'eau et de diéthylèneglycol (50/50 p/p) appliquée sur la couche poreuse à l'aide d'une imprimante à jet d'encre résiste à un maculage lorsqu'elle est placée en contact avec une feuille de papier dans les 50 secondes suivant l'application de l'encre.

3. Feuille imprimable suivant la revendication 1 et la revendication 2, caractérisée en ce que la couche poreuse comprend une résine d'hydroxyéthylcellulose.

4. Feuille imprimable suivant l'une quelconque des revendications précédentes, caractérisée en ce que le substrat comprend un film de téréphtalate de polyéthylène orienté bi-axialement.

5. Feuille imprimable suivant l'une quelconque des revendications précédentes, caractérisée en ce qu'elle comprend de plus une couche adhésive intermédiaire entre le substrat et la couche absorbant l'encre.

6. Feuille imprimable suivant la revendication 5, caractérisée en ce que la couche adhésive comprend une résine thermoplastique élastomère et un agent taquifiant pour celle-ci.

7. Transparent pourvu d'une image utile selon un mode par transmission comprenant une feuille suivant l'une quelconque des revendications précédentes, ayant un motif imprimé appliqué sur la couche de résine poreuse par une technique d'impression par jet d'encre.

8. Procédé de production d'une feuille d'enregistrement imprimable transparente suivant l'une quelconque des revendications précédentes, comprenant la formation, sur un substrat de film polymère thermoplastique non-poreux, d'une couche poreuse absorbant l'encre d'une résine comprenant une résine hydrophobe, ou

une résine hydrophile ou un mélange de deux de ces résines ou davantage, caractérisé par l'application sur le substrat d'une composition d'enduction comprenant la ou les résines dans un milieu volatil et ensuite le séchage du substrat enduit pour éliminer le milieu, la composition d'enduction appliquée comprenant :

- (a) une dispersion colloïdale de la ou des résines dans un milieu volatil, ou
- (b) un mélange de résines incompatibles dans un milieu solvant mutuel, ou
- (c) une solution de la ou des résines dans un milieu solvant à condition qu'au moins pour la condition (c), le séchage soit effectué par étapes à des températures progressivement croissantes.

Patentansprüche

1. Transparentes, tinte-aufnehmendes Aufzeichnungsblatt, welches ein selbsttragendes, nicht-poröses, thermoplastisches Polymerfilm-Substrat umfaßt, das auf einer Oberfläche eine poröse, tinte-absorbierende Harzschicht aufweist, wobei die poröse Harzschicht Hohlräume, welche Tinte auf Basis wässrigorganischer Lösungsmittel absorbieren und zurückhalten können, enthält, und wobei die Hohlräume eine Breite von 0,001 bis 1,0 μm und ein Aspekt-Verhältnis (d.h. Länge:Breite) von 4 bis 400 besitzen.

2. Tinte-aufnehmendes Blatt nach Anspruch 1, wobei die poröse Schicht ein hydrophobes Harz oder ein hydrophiles Harz oder eine Mischung aus zwei oder mehrerer solcher Harze umfaßt, wobei die Porösität der porösen Schicht so beschaffen ist, daß eine auf Wasser-Diethylenglykol (50:50 w/w) basierende Tinte, die mit einem Tintenstrahlendrucker auf die poröse Schicht aufgetragen wurde, einem Auslaufen widersteht, wenn sie innerhalb 50 Sekunden nach Auftragen der Tinte mit einem Blatt Papier in Kontakt gebracht wird.

3. Tinte-aufnehmendes Blatt nach Ansprüchen 1 und 2, dadurch gekennzeichnet, daß die poröse Schicht ein Hydroxyethylcelluloseharz umfaßt.

4. Tinte-aufnehmendes Blatt nach einem der vorhergehenden Ansprüche, dadurch gekennzeichnet, daß das Substrat einen biaxial-orientierten Polyethylen-Terephtalatfilm umfaßt.

5. Tinte-aufnehmendes Blatt nach einem der vorhergehenden Ansprüche, welches zusätzlich eine dazwischenliegende, haftende Schicht

zwischen dem Substrat und der tinte-absorbierenden Schicht enthält.

6. Tinte-aufnehmendes Blatt nach Anspruch 5, dadurch gekennzeichnet, daß die haftende Schicht ein elastomeres, thermoplastisches Harz und einen Klebrigmacher dafür umfaßt. 5
7. Transparenzbild zum Gebrauch im Transmissions-Modus, welches ein Blatt nach einem der vorhergehenden Ansprüche umfaßt, das ein mit Tinte versehenes Muster aufweist, das mit einer Tintenstrahl Drucktechnik auf die poröse Harzschicht aufgetragen wurde. 10
8. Verfahren zur Herstellung eines transparenten, tinte-aufnehmenden Aufzeichnungsblattes nach einem der vorhergehenden Ansprüche, welches die Bildung einer porösen, tinte-absorbierenden Schicht aus einem Harz, das ein hydrophobes Harz, ein hydrophiles Harz oder eine Mischung aus zwei oder mehreren solcher Harze enthält, auf einem nichtporösen, thermoplastischen Polymerenfilm-Substrat umfaßt, dadurch gekennzeichnet, daß eine Beschichtungszusammensetzung, welche das Harz oder die Harze in einem flüchtigen Medium umfaßt, auf das Substrat aufgetragen wird und danach das beschichtete Substrat getrocknet wird, um das Medium zu entfernen, wobei die verwendete Beschichtungszusammensetzung 15
 - a) eine kolloidale Dispersion des Harzes bzw. der Harze in einem flüchtigen Medium oder 20
 - b) eine Mischung von unverträglichen Harzen in einem beidseitigen Lösungsmedium oder 25
 - c) eine Lösung des Harzes bzw. der Harze in einem Lösungsmedium umfaßt, 30
 mit der Maßgabe, daß zumindest bei der Zusammensetzung (c) das Trocknen stufenweise bei fortschreitend steigenden Temperaturen durchgeführt wird. 35

45

50

55

Fig.1.

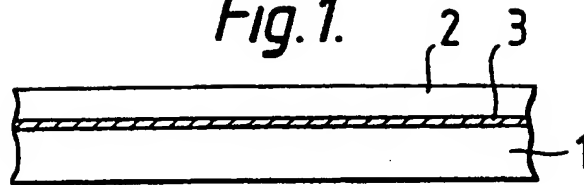


Fig.2.

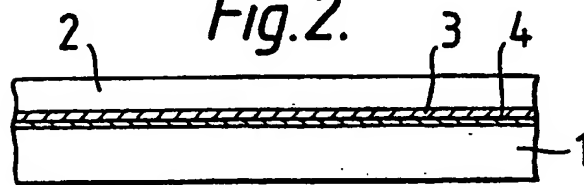


Fig.3.

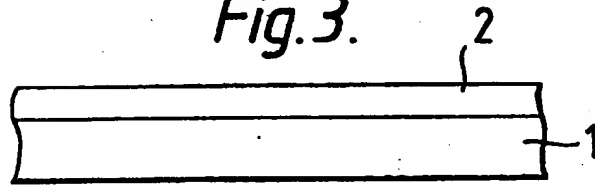


Fig.4.

